

### ***Remarks***

Upon entry of the foregoing amendment, claims 1-5 are cancelled. Claims 6-15 are pending, with claims 6, 8 and 12 being the independent claims. Claims 6, and 8-12 are amended, and new claims 13-15 are sought to be added.

Support for amendment to claims 6 and 8 is found in the specification on page 3, Mixture No. 1 of the Table. These amendments add no new matter and their entry is respectfully requested.

New claims 13-15 recite a synergistic composition of imidacloprid and clothianidin at the mixing ratio of 1 to 1, which possesses synergism as demonstrated in Examples K-N, on pages 52-59 of the specification. New claims 13-15 are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

#### ***I. Supplemental Information Disclosure Statement***

Applicants note that a Second Supplemental Information Disclosure Statement is submitted accompanying the Amendment and Reply. Applicants respectfully request the Examiner initial and return a copy of Information Disclosure Statement Forms.

#### ***II. Objections***

Claims 6 and 8 are objected for reciting the claims in a table format. The amendment to claims 6 and 8 herein renders this objection moot.

**III. Rejections under 35 U.S.C. § 112, Second Paragraph**

Claims 6-12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because independent claims 6 and 8 recite claimed combinations in the table format. The amendment to claims 6 and 8 herein renders this rejection moot.

**IV. Rejections under 35 U.S.C. § 112, First Paragraph**

Claims 6-12 are rejected under 35 U.S.C. § 112, first paragraph, allegedly for a lack of enablement for Mixture Nos. 2, 3, 5-8 and 10-21. The amendment to claims 6 and 8 herein renders this rejection moot.

**V. Rejections under 35 U.S.C. § 103**

Claims 6-10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawahara *et. al.* (US 2003/0013684) ("Kawahara"). Claims 8, 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Miura *et. al.* (US 2001/0046986) ("Miura"). Applicants respectfully traverse these rejections.

**A. Claims 6-10 and 12 Are not Prima Facie Obvious over Kawahara**

The Examiner acknowledged that Kawahara does not disclose a synergistic combination listed in the table of claims 6 and 8. However, the Examiner states that "[o]ne would have been motivated to include one of these combinations because Kawahara et al. teach that nitenpyram, acetamiprid, thiamethoxam and dinotefuran may be mixed with each other in order to formulate an insecticide for agriculture use." (Office Action, page 8.) Applicants respectfully traverse this rejection.

Amended claims 6 and 8 are directed to a synergistic composition of imidacloprid and clothianidin, and method of use thereof. Kawahara does not teach a

synergistic composition of imidacloprid and clothianidin. Thus, the amendment to claims 6 and 8 herein renders this rejection moot.

Kawahara is silent regarding the specific combination of imidacloprid and clothianidin as recited in claims 6 and 8 of the present invention. There is nothing in Kawahara that would provide a reason for making the specific combination of imidacloprid and clothianidin, which possesses a synergistic effect as demonstrated by Applicants.

Thus, for these reasons, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness.

***B. Claims 8, 11 and 12 Are not Prima Facie Obvious over Miura***

The Examiner acknowledged that Miura does not disclose a synergistic combination listed in the table of claim 8. However, the Examiner states that "[o]ne would have been motivated to include one of these combinations because Miura et al. teach that nitenpyram, acetamiprid, thiamethoxam and dinotefuran may be mixed with each other in order to formulate a pesticidal composition for use on animal pests." (Office Action, page 10.) Applicants respectfully traverse this rejection.

Amended claim 8 is directed to a synergistic composition of imidacloprid and clothianidin, wherein the weight ratio of imidacloprid to clothianidin is from 10:1 to 1:10.

Miura, at most, teaches clothianidin, nitenpyram, imidacloprid, thiacloprid, acetamiprid, thiamethoxam and dinotefuran may be used alone or in combination for controlling flies. Miura is silent regarding the specific combination of imidacloprid and

clothianidin as recited in claim 8 of the present invention. There is nothing in Miura that would provide a reason for making the specific combination of imidacloprid and clothianidin, which possesses a synergistic effect as demonstrated by Applicants.

In addition, Applicants amended claim 8 to recite the specific ratios of imidacloprid and clothianidin in the combination. There is nothing in Miura, would provide a reason for making the synergistic combination at the ratios recited in claim 8 of the present invention.

Thus, for these reasons, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness.

**C. Synergistic Effect**

Even assuming, *arguendo*, that a *prima facie* case of obviousness is established, the synergistic effect exhibited by the claimed composition is sufficient to overcome a *prima facie* case of obviousness.

**1. Bemisia tabaci test**

In this study, the claimed combination (imidacloprid: clothianidin=1:1) was applied to cotton plants (*Gossypium hirsutum*) which were infested by whitefly (*Bemisia tabaci*) eggs. As shown in Table K of the specification, when applied individually at an application rate of 0.16 ppm (parts per million), a whitefly destruction of 5% was observed for imidacloprid and clothianidin. However, a whitefly destruction of 35% was observed when a combination of imidacloprid and clothianidin were applied. According to Colby formula, the calculated whitefly destruction percentage of the combination is 9.75%. Thus, the observed destruction percentage of the combination (35%) is much

greater than the calculated destruction percentage of the combination (9.75%). Moreover, the sum of the destruction percentages observed when imidacloprid and clothianidin were applied individually ( $5\% + 5\% = 10\%$ ) is much less than the observed destruction percentage when both were applied (35%). Therefore, the combination of imidacloprid and clothianidin at the weight ratio of 1:1 has a synergistic effect against *Bemisia tabaci*.

## 2. *Heliothis armigera* test

In this study, soy bean shoots (*Glycine max*) were first treated with the claimed combination (imidacloprid: clothianidin=1:1), and then infested with *Heliothis armigera* caterpillars. As shown in Table L of the specification, when applied individually at an application rate of 4 ppm, a caterpillar destruction of 10% and 0%, respectively, was observed for imidacloprid and clothianidin. However, a caterpillar destruction of 70% was observed when a combination of imidacloprid and clothianidin were applied. According to Colby formula, the calculated caterpillar destruction percentage of the combination is 10%. Thus, the observed destruction percentage of the combination (70%) is much greater than the calculated destruction percentage of the combination (10%). Moreover, the sum of the destruction percentages observed when imidacloprid and clothianidin were applied individually ( $10\% + 0\% = 10\%$ ) is much less than the observed destruction percentage when both were applied (70%). Therefore, the combination of imidacloprid and clothianidin at the weight ratio of 1:1 has a synergistic effect against *Heliothis armigera*.

### 3. *Myzus persicae* test

In this study, cabbage leaves (*Brassica oleracea*) which were severely infested with green peach aphids (*Myzus persicae*), were treated with the claimed combination (imidacloprid: clothianidin=1:1). As shown in Table M of the specification, when applied individually at an application rate of 0.16 ppm, aphids destruction of 50% and 0%, respectively, was observed for imidacloprid and clothianidin. However, aphids destruction of 70% was observed when a combination of imidacloprid and clothianidin were applied. According to Colby formula, the calculated aphids destruction percentage of the combination is 50%. Thus, the observed destruction percentage of the combination (70%) is much greater than the calculated destruction percentage of the combination (50%). Moreover, the sum of the destruction percentages observed when imidacloprid and clothianidin were applied individually (50% + 0% = 50%) is much less than the observed destruction percentage when both were applied (70%). Therefore, the combination of imidacloprid and clothianidin at the weight ratio of 1:1 has a synergistic effect against *Myzus persicae*.

### 4. *Spodoptera exigua* test

In this study, cabbage leaves (*Brassica oleracea*) were first treated with the claimed combination (imidacloprid: clothianidin=1:1), and then infested with army worm caterpillars (*Spodoptera exigua*). As shown in Table N of the specification, when applied individually at an application rate of 20 ppm, a caterpillar destruction of 10% was observed for imidacloprid and clothianidin. However, a caterpillar destruction of 70% was observed when a combination of imidacloprid and clothianidin were applied. According to Colby formula, the calculated caterpillar destruction percentage of the

combination is 19%. Thus, the observed destruction percentage of the combination (70%) is much greater than the calculated destruction percentage of the combination (19%). Moreover, the sum of the destruction percentages observed when imidacloprid and clothianidin were applied individually (10% + 10% = 20%) is much less than the observed destruction percentage when both were applied (70%). Therefore, the combination of imidacloprid and clothianidin at the weight ratio of 1:1 has a synergistic effect against *Spodoptera exigua*.

The Examiner asserts that "synergy is an inherent property where any two compounds are used in combination with each other obtain unexpected results. The addition of another herbicide does not remove the presence of synergy." (Office Action, pages 8 and 10.) Applicants respectfully disagree.

Synergy cannot be an inherent property when the claimed composition is not in the prior art, *i.e.*, is not known. See *In re Sporman*, 363 F.2d 444, 448 (C.C.P.A. 1966) ("That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.").

In summary, for the reasons set forth, Applicants respectfully submit that the data in the specification demonstrated synergistic effect of claimed combination for controlling various insects. Reconsideration and withdrawal of the outstanding rejection is earnestly solicited.

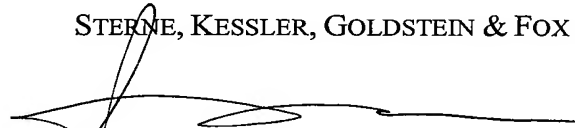
### ***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the

Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

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